



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Gentz et al.

Application Serial No 09/006,352

Art Unit: 1646

Filed: January 13, 1998

Examiner: O'Hara, E.

For: Tumor Necrosis Factor  
Receptors 6 $\alpha$  & 6 $\beta$

Attny Docket No.: PF454

**A CLEAN VERSION OF THE ENTIRE SET OF  
PENDING CLAIMS AS ALLOWED FOR UNDER 37 C.F.R. §1.121(C)(3);**

24. (New) An isolated nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence encoding amino acid residues 1 to 300 of SEQ ID NO:2;
- (b) a nucleotide sequence encoding amino acid residues 2 to 300 of SEQ ID NO:2;
- (c) a nucleotide sequence encoding amino acid residues 31 to 300 of SEQ ID NO:2;
- (d) a nucleotide sequence encoding amino acid residues 31 to 283 of SEQ ID NO:2; and
- (e) a nucleotide sequence that is the complement of (a), (b), (c), or (d).

25. (New) The nucleic acid molecule of claim 24 comprising a nucleotide sequence according to (a).

26. (New) The nucleic acid molecule of claim 24 comprising a nucleotide sequence according to (b).

27. (New) The nucleic acid molecule of claim 24 comprising a nucleotide sequence according to (c).

28. (New) The nucleic acid molecule of claim 24 comprising a nucleotide sequence according to (d).

29. (New) The nucleic acid molecule of claim 24 comprising a nucleotide sequence according to (e).

30. (New) The nucleic acid molecule of claim 25 comprising nucleotides 25 to 924 of SEQ ID NO:1.

31. (Amended) The nucleic acid molecule of claim 24 further comprising a nucleotide sequence heterologous to SEQ ID NO:1.

32. (New) The nucleic acid molecule of claim 31, wherein said heterologous nucleotide sequence encodes a polypeptide heterologous to SEQ ID NO:2.

33. (New) The nucleic acid molecule of claim 32, wherein said heterologous polypeptide is an Fc domain of immunoglobulin.

34. (New) A recombinant vector comprising the nucleic acid molecule of claim 24.

35. (New) The recombinant vector of claim 34, wherein the nucleic acid molecule is operably associated with a regulatory element that controls expression of said nucleic acid molecule.

36. (New) A recombinant host cell comprising the vector of claim 34.

37. (New) A recombinant host cell comprising the nucleic acid molecule of claim 24 operably associated with a regulatory element that controls expression of said nucleic acid molecule.

38. (New) A method of producing a polypeptide encoded by the nucleic acid molecule of claim 24(a)-(d), comprising:

- (a) culturing a host cell comprising said nucleic acid molecule under conditions suitable to produce said polypeptide; and
- (b) recovering said polypeptide from the culture.

39. (New) A composition comprising the nucleic acid molecule of claim 24 and a pharmaceutically acceptable carrier.

40. (Amended) An isolated nucleic acid molecule comprising a nucleotide sequence encoding a first amino acid sequence at least 90% identical to the entire length of a second amino acid sequence selected from the group consisting of:

- (a) amino acid residues 1 to 300 of SEQ ID NO:2;
- (b) amino acid residues 2 to 300 of SEQ ID NO:2;
- (c) amino acid residues 31 to 300 of SEQ ID NO:2; and
- (d) amino acid residues 31 to 283 of SEQ ID NO:2;

wherein a protein consisting of said first amino acid sequence binds Fas ligand.

41. (New) The nucleic acid molecule of claim 40 encoding a first amino acid sequence at least 90% identical to a second amino acid sequence according to (a).

42. (New) The nucleic acid molecule of claim 40 encoding a first amino acid sequence at least 90% identical to an amino acid sequence according to (b).

43. (New) The nucleic acid molecule of claim 40 encoding a first amino acid sequence at least 90% identical to a second amino acid sequence according to (c).

44. (New) The nucleic acid molecule of claim 40 encoding a first amino acid sequence at least 90% identical to a second amino acid sequence according to (d).

45. (Twice Amended) The nucleic acid molecule of claim 44 encoding a first amino acid sequence at least 95% identical to a second amino acid sequence according to (d).

46. (New) An isolated nucleic acid molecule comprising the complement of the nucleotide sequence of claim 40.

47. (Thrice Amended) The nucleic acid molecule of claim 44 that further comprises a nucleotide sequence heterologous to SEQ ID NO:1.

48. (New) The nucleic acid molecule of claim 47, wherein said heterologous nucleotide sequence encodes a polypeptide heterologous to SEQ ID NO:2.

49. (New) The nucleic acid molecule of claim 48, wherein said heterologous polypeptide is an Fc domain of immunoglobulin.

50. (Twice Amended) A recombinant vector comprising the nucleic acid molecule of claim 44.

51. (New) The recombinant vector of claim 50, wherein the nucleic acid molecule is operably associated with a regulatory element that controls expression of said nucleic acid molecule.

52. (New) A recombinant host cell comprising the vector of claim 50.

53. (Twice Amended) A recombinant host cell comprising the nucleic acid molecule of claim 44 operably associated with a regulatory element that controls expression of said nucleic acid molecule.

54. (Twice Amended) A method of producing a polypeptide encoded by the nucleic acid molecule of claim 44 comprising:

- (a) culturing a host cell comprising said nucleic acid molecule under conditions suitable to produce said polypeptide; and
- (b) recovering said polypeptide from the culture.

55. (Twice Amended) A composition comprising the nucleic acid molecule of claim 44 and a pharmaceutically acceptable carrier.

56. (Amended) An isolated nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence encoding the full-length polypeptide encoded by the cDNA contained in clone HPHA52 as deposited with the ATCC as accession number 97810;

(b) a nucleotide sequence encoding the full-length polypeptide, lacking the N-terminal methionine, which is encoded by the cDNA contained in clone HPHA52 as deposited with the ATCC as accession number 97810;

(c) a nucleotide sequence encoding the mature polypeptide encoded by the cDNA contained in clone HPHA52 as deposited with the ATCC as accession number 97810;

(d) a nucleotide sequence encoding the soluble extracellular domain encoded by the cDNA contained in clone HPHA52 as deposited with the ATCC as accession number 97810, respectively; and

(e) a nucleotide sequence that is the complement of (a), (b), (c), or (d).

57. (New) The nucleic acid molecule of claim 56 comprising a nucleotide sequence according to (a).

58. (New) The nucleic acid molecule of claim 56 comprising a nucleotide sequence according to (b).

59. (New) The nucleic acid molecule of claim 56 comprising a nucleotide sequence according to (c).

60. (New) The nucleic acid molecule of claim 56 comprising a nucleotide sequence according to (d).

61. (New) The nucleic acid molecule of claim 56 comprising a nucleotide sequence according to (e).

62. (New) The nucleic acid molecule of claim 59 comprising the nucleotide sequence of the cDNA that encodes the mature polypeptide encoded by clone HPHA52, which clone was deposited with the ATCC as accession number 97810.

63. (Amended) The nucleic acid molecule of claim 59 further comprising a nucleotide sequence heterologous to the cDNA contained in clone HPHA52 as deposited with the ATCC as accession number 97810.

64. (New) The nucleic acid molecule of claim 63, wherein said heterologous nucleotide sequence encodes a polypeptide heterologous to the polypeptide encoded by the cDNA contained in clone HPHA52, which clone was deposited with the ATCC as accession number 97810.

65. (New) The nucleic acid molecule of claim 64, wherein said heterologous polypeptide is an Fc domain of immunoglobulin.

66. (New) A recombinant vector comprising the nucleic acid molecule of claim 59.

67. (New) The recombinant vector of claim 66, wherein the nucleic acid molecule is operably associated with a regulatory element that controls expression of said nucleic acid molecule.

68. (New) A recombinant host cell comprising the vector of claim 66.

69. (New) A recombinant host cell comprising the nucleic acid molecule of claim 59 operably associated with a regulatory element that controls expression of said nucleic acid molecule.

70. (New) A method of producing a polypeptide encoded by the nucleic acid molecule of claim 59, comprising:

- (a) culturing a host cell comprising said nucleic acid molecule under conditions suitable to produce said polypeptide; and
- (b) recovering said polypeptide from the culture.

71. (New) A composition comprising the nucleic acid molecule of claim 59 and a pharmaceutically acceptable carrier.

72. (New) An isolated nucleic acid molecule comprising a nucleotide sequence encoding a first amino acid sequence at least 90% identical to the entire length of a second amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of the full-length polypeptide encoded by the cDNA contained in clone HPHA52 as deposited with the ATCC as accession number 97810;
  - (b) the amino acid sequence of the full-length polypeptide, lacking the N-terminal methionine, which is encoded by the cDNA contained in clone HPHA52 as deposited with the ATCC as accession number 97810;
  - (c) the amino acid sequence of the mature polypeptide encoded by the cDNA contained in clone HPHA52 as deposited with the ATCC as accession number 97810; and
  - (d) the amino acid sequence of the soluble extracellular domain of the polypeptide encoded by the cDNA contained in clone HPHA52 as deposited with the ATCC as accession number 97810;
- wherein a protein consisting of said first amino acid sequence binds Fas ligand.

73. (New) The nucleic acid molecule of claim 72 encoding a first amino acid sequence at least 90% identical to a second amino acid sequence according to (a).

74. (New) The nucleic acid molecule of claim 72 encoding a first amino acid sequence at least 90% identical to a second amino acid sequence according to (b).

75. (New) The nucleic acid molecule of claim 72 encoding a first amino acid sequence at least 90% identical to a second amino acid sequence according to (c).

76. (New) The nucleic acid molecule of claim 72 encoding a first amino acid sequence at least 90% identical to a second amino acid sequence according to (d).

77. (New) The nucleic acid molecule of claim 75 encoding a first amino acid sequence at least 95% identical to a second amino acid sequence according to (c).

78. (New) An isolated nucleic acid molecule comprising the complement of the nucleotide sequence of claim 72.

79. (Amended) The nucleic acid molecule of claim 75 that further comprises a nucleotide sequence heterologous to the cDNA contained in clone HPHA52 as deposited with the ATCC as accession number 97810.

80. (New) The nucleic acid molecule of claim 79, wherein said heterologous nucleotide sequence encodes a polypeptide heterologous to the polypeptide encoded by the cDNA contained in clone HPHA52 as deposited with the ATCC as accession number 97810.

81. (New) The nucleic acid molecule of claim 80, wherein said heterologous polypeptide is an Fc domain of immunoglobulin.

82. (New) A recombinant vector comprising the nucleic acid molecule of claim 75.

83. (New) The recombinant vector of claim 82, wherein the nucleic acid molecule is operably associated with a regulatory element that controls expression of said nucleic acid molecule.

84. (New) A recombinant host cell comprising the vector of claim 82.



85. (New) A recombinant host cell comprising the nucleic acid molecule of claim 75 operably associated with a regulatory element that controls expression of said nucleic acid molecule.

86. (New) A method of producing a polypeptide encoded by the nucleic acid molecule of claim 75 comprising:

- (a) culturing a host cell comprising said nucleic acid molecule under conditions suitable to produce said polypeptide; and
- (b) recovering said polypeptide from the culture.

87. (New) A composition comprising the nucleic acid molecule of 75 and a pharmaceutically acceptable carrier.

88. (New) An isolated nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence encoding amino acid residues m-300 of SEQ ID NO:2, where m is an integer in the range of 1 to 49;
  - (b) a nucleotide sequence encoding amino acid residues 1-y of SEQ ID NO:2, where y is an integer in the range of 193 to 300;
  - (c) a nucleotide sequence encoding amino acid residues m-y of SEQ ID NO:2, where m is an integer in the range of 1 to 49 and y is an integer in the range of 193 to 300; and
  - (d) a nucleotide sequence that is the complement of (a), (b), or (c);
- wherein a protein consisting of said amino acid residues bind Fas ligand.

89. (New) The nucleic acid molecule of claim 88 comprising a nucleotide sequence according to (a).

90. (New) The nucleic acid molecule of claim 88 comprising a nucleotide sequence according to (b).

91. (New) The nucleic acid molecule of claim 88 comprising a nucleotide sequence according to (c).

92. (New) The nucleic acid molecule of claim 88 comprising a nucleotide sequence according to (d).

93. (New) The nucleic acid molecule of claim 88 wherein the nucleotide sequence encodes amino acid residues 49 to 300 of SEQ ID NO:2.

94. (New) The nucleic acid molecule of claim 88 wherein the nucleotide sequence encodes amino acid residues 1 to 193 of SEQ ID NO:2.

95. (Amended) The nucleic acid molecule of claim 88 further comprising a nucleotide sequence heterologous to SEQ ID NO:1.

96. (New) The nucleic acid molecule of claim 95, wherein said heterologous nucleotide sequence encodes a polypeptide heterologous to SEQ ID NO:2.

97. (New) The nucleic acid molecule of claim 96, wherein said heterologous polypeptide is an Fc domain of immunoglobulin.

98. (New) A recombinant vector comprising the nucleic acid molecule of claim 88.

99. (New) The recombinant vector of claim 98, wherein the nucleic acid molecule is operably associated with a regulatory element that controls expression of said nucleic acid molecule.

100. (New) A recombinant host cell comprising the vector of claim 98.

101. (New) A recombinant host cell comprising the nucleic acid molecule of claim 88 operably associated with a regulatory element that controls expression of said nucleic acid molecule.

102. (New) A method of producing a polypeptide encoded by the nucleic acid molecule of claim 88(a)-(c), comprising:

- (a) culturing a host cell comprising said nucleic acid molecule under conditions suitable to produce said polypeptide; and
- (b) recovering said polypeptide from the culture.

103. (New) A composition comprising the nucleic acid molecule of claim 88 and a pharmaceutically acceptable carrier.

104. (New) An isolated nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence encoding a polypeptide comprising a portion of the complete amino acid sequence encoded by the cDNA clone contained in ATCC Deposit 97810 wherein said portion excludes up to 48 amino acids from the amino terminus of the complete amino acid sequence;
- (b) a nucleotide sequence encoding a polypeptide comprising a portion of the complete amino acid sequence encoded by the cDNA clone contained in ATCC Deposit 97810 wherein said portion excludes up to 107 amino acids from the carboxy terminus of the complete amino acid sequence;
- (c) a nucleotide sequence encoding a polypeptide comprising a portion of the complete amino acid sequence encoded by the cDNA clone contained in ATCC Deposit 97810 wherein said portion excludes up to 48 amino acids from the amino terminus and up to 107 amino acids from the carboxy terminus of the complete amino acid sequence; and
- (d) a nucleotide sequence that is the complement of (a), (b), or (c); wherein said polypeptide consisting of a portion of the complete amino acid sequence encoded by the cDNA clone contained in ATCC Deposit 97810 binds Fas ligand.

105. (New) The nucleic acid molecule of claim 104 comprising a nucleotide sequence according to (a).

106. (New) The nucleic acid molecule of claim 104 comprising a nucleotide sequence according to (b).

107. (New) The nucleic acid molecule of claim 104 comprising a nucleotide sequence according to (c).

108. (New) The nucleic acid molecule of claim 104 comprising a nucleotide sequence according to (d).

109. (Amended) The nucleic acid molecule of claim 104 further comprising a nucleotide sequence heterologous to said cDNA clone.

110. (New) The nucleic acid molecule of claim 109, wherein said heterologous nucleotide sequence encodes a polypeptide heterologous to the polypeptide encoded by said cDNA clone.

111. (New) The nucleic acid molecule of claim 110, wherein said heterologous polypeptide is an Fc domain of immunoglobulin.

112. (New) A recombinant vector comprising the nucleic acid molecule of claim 104.

113. (New) The recombinant vector of claim 112, wherein the nucleic acid molecule is operably associated with a regulatory element that controls expression of said nucleic acid molecule.

114. (New) A recombinant host cell comprising the vector of claim 112.

115. (New) A recombinant host cell comprising the nucleic acid molecule of claim 104 operably associated with a regulatory element that controls expression of said nucleic acid molecule.

116. (New) A method of producing a polypeptide encoded by the nucleic acid molecule of claim 104(a)-(c), comprising:

- (a) culturing a host cell comprising said nucleic acid molecule under conditions suitable to produce said polypeptide; and
- (b) recovering said polypeptide from the culture.

117. (New) A composition comprising the nucleic acid molecule of claim 104 and a pharmaceutically acceptable carrier.

285. (New) An isolated polynucleotide comprising a polynucleotide of SEQ ID NO:1.

287. (New) The isolated polynucleotide of SEQ ID NO:1.

291. (Amended) An isolated polynucleotide comprising a nucleotide sequence that is at least 95% identical to a nucleotide sequence encoding amino acid residues 31-300 of SEQ ID NO:2 wherein said polynucleotide encodes a polypeptide that binds Fas ligand.

292. (Amended) An isolated polynucleotide comprising a nucleotide sequence that is at least 95% identical to a nucleotide sequence encoding amino acid residues 31-283 of SEQ ID NO: 2 wherein said polynucleotide encodes a polypeptide that binds Fas ligand.

295. (New) An isolated polynucleotide which is complementary to the polynucleotide of claim 285.

297. (New) An isolated polynucleotide which is complementary to the polynucleotide of claim 287.

302. (Amended) An expression vector for the production of a polypeptide comprising amino acids 31-300 of SEQ ID NO:2 comprising a polynucleotide that encodes amino acids 31-300 of SEQ ID NO:2 operably associated with a regulatory element that controls expression of said polynucleotide.

303. (New) A host cell comprising the expression vector of claim 302.

304. (Amended) A method of for producing a polypeptide comprising amino acids 31-300 of SEQ ID NO:2, comprising culturing the host cell of claim 303 under conditions sufficient for the production of said polypeptide and recovering said polypeptide from the culture.

305. (Amended) A process for producing a cell which produces a polypeptide comprising amino acids 31-300 of SEQ ID NO:2, comprising transforming or transfecting a host cell with the expression vector of claim 302 such that the host cell, under appropriate culture conditions, produces said polypeptide.